Solving linear systems using substitution method

1. Look at the system and identify a variable that has a coefficient of 1. Once you identify the variable, then solve the equation for the variable which has the coefficient of one.

$6x+y=14$ ← "y" has a coeff. of 1

$10x-y=2$ ← "y" has a coeff. of -1

Solve for y: $6x+y=14$

$-6x \quad -6x$

$y=14-6x$

2. Now take 14 - 6x and substitute this in for the y-variable in 10x-y=2.

$10x-1(14-6x)=2$

$10x-14+6x=2$

$16x-14=2$

$$+14 \quad +14$$

$$\frac{16x}{16} = \frac{16}{16}$$

$$x = 1$$

3. Next substitute 1 in for the x variable in one of the original equations.

$$10x - y = 2$$

$$10(1) - y = 2$$

$$10 - y = 2$$

$$-10 \quad -10$$

$$\frac{-y}{-1} = \frac{-8}{-1}$$

$$y = 8$$

solution
(1, 8)

4. Write the solution as an ordered pair. (1,8) is where the two lines would intersect each other on a graph.